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ANNUAL REPORT

DIVISION OF STANDARDS

DONALD B. FALVEY, DIRECTOR

CHARLES H. CARROLL, ASSISTANT DIRECTOR

FISCAL YEAR ENDING JUNE 30, 1986



The Division of Standards is one of the principal consumer protection and consumer service agencies within the structure of State government. Its activities cover a broad spectrum with a major emphasis in the area of weights and measures administration; the technology of weighing and measuring devices and the enforcement of laws relating to weights and measures that deal with the sales of food, fuel and all other necessities of life and all other commodities that are sold on the basis of weight or measure. The Division of Standards acts as a liaison between municipalities, industry and the National Bureau of Standards on measurement problems. Quality standards are maintained with respect to gasoline, motor oil, heating oil and antifreeze. Our measurement capabilities are, also, reflected in accuracy standards relating to clinical thermometers. The Division enforces laws and regulations relating to unit pricing and electronic retail scanning checkout systems. The Division is the licensing agency for motor fuel and motor oil dealers, hawkers and peddlers, transient vendors and the registration of manufacturers and distributors of antifreeze. The services of the Division of Standards to every citizen of the Commonwealth and to every other entity of the Commonwealth, including industry and business, warrant the support of government towards ever improving the resources of the Division of Standards in the implementation and enforcement of its laws and regulations.

The name "Division of Standards" is directed primarily to our activities in measurement standards. In common terminology, and in statutory language, the term is understood as "Weights and Measures". From a historical perspective, this Commonwealth has always recognized the need for a weights and measures program. The records of the Colony of Massachusetts Bay indicates that the Governor has been given a role in sealing weights and measures prior to 1631. Under the provisions of the Revised Laws of 1902, the Deputy State Sealer in the Department of the Treasurer and Receiver General functioned as the State Weights and Measures Officer. In 1908, the position of Commissioner of Weights and Measures was created together with a new Department of Weights and Measures which carried over the duties of the Deputy State Sealer. In 1918, the Department of Weights and Measures was reorganized as the Department of Standards, taking its "Standards" name from the then recently created National Bureau of Standards at the federal level. In 1919, the Department of Standards was reorganized as the Division of Standards and for organizational purposes was placed in Department of Labor and Industries where it remained until 1969. Chapter 704 Acts of 1969 was an Act Establishing a Governor's Cabinet, and the Division of Standards was transferred to the Executive Office of Consumer Affairs and Business Regulations which was an appropriate move.

When one reviews the background and significance of weights and measures in our daily life, we recognize that this is a function of government that existed in our nation's growth in





its colonial era and all throughout the period of our development until the present day. The concern of the correctness of the use of weighing and measuring devices goes back even into biblical times which contain many references to the need for accurate weights and measures. Historically there has been a concern for the use of standards that are accurate and correct in our everyday purchase of goods and commodities. It might be said that weights and measures was one of the earliest types of standards that was developed.

Weights and Measures impacts economically on every citizen of the Commonwealth, and indeed, on every citizen in our nation. Much of the public takes correct weights and measures for granted when they purchase their gasoline, food, and have their fuel oil delivered to them. There is an expectation that the quantity delivered and the price charged for that delivery is accurate. When one hires a taxicab it is expected that the meter in the cab which determines the cost of distance traveled is correct. When they hire a mover for an interstate move and the cost is based upon the weight of their household goods, they will, likewise, expect this to be correct. There is an apparent confidence level, but much of this confidence must be attributed to the efforts of weights and measures law enforcement activity. Broadly speaking, basic weights and measures activities encompass two areas of enforcement. One relates to the physical and technical inspection and testing of weighing and measuring devices and the other relates to the inspection and investigations in how these devices are being used; in other words, is there any fraudulent use of such measurement devices or fraud used in the measurement of goods and commodities or services sold on the basis of weight or measure.

The technological sophistication of today's scales, metering systems and other commercial measuring systems represents a far cry from the simpler measurement tools of another era. While the early colonists measured their grains and other commodities with bushel containers or simple balances, the advent of electronics and digital systems have brought space-age design in the every day purchases of food, gasoline, heating oils and other essential goods and services. The accuracy of these systems must be verified by weights and measures activities of the Division of Standards. The Division of Standards, as the state regulatory agency in this field, must develop rules and regulations relating to specification and tolerances and other technical criteria, interacts closely with the National Bureau of Standards and as an active member in the National Conference on Weights and Measures develops model regulations relating to design criteria and accuracy requirements for a broad category of weighing and measuring devices. There has been representation at the National Conference on Weights and Measures by State Weights





and Measures personnel since the first conference held in 1905, when ten delegates met to form that organization. Now there are over 400 people that meet annually at the National Conference on Weights and Measures to continually update the needs of the states and municipal officers. Many Massachusetts officials have made valuable contributions, and continue to do so, in providing guidance, specifications, tolerances and model laws and regulations. Charles H. Carroll, Assistant Director of Standards has been appointed to serve as a Vice Chairman of the 1986 National Conference as well as being appointed to the Resolutions Committee. Mr. Carroll brings over 28 years of Weights and Measures experience to the conference where his opinions are well respected. His overall knowledge of Weights and Measures Laws and Regulations as well as enforcement aspects are second to none. In addition Mr. Carroll serves as an officer of the Northwest Weights and Measures Association.

Although mechanical measurement devices are still being produced, the more predominant effect in the market is the utilization of electronic systems that provide for a wider range of information, customer display and interface capability with other systems. For example, we now commonly see "point-of-sales" weighing systems in which a scale weighing element, which consists of an electronic load cell together with other transmitting capabilities, is interfaced with an electronic cash register. This, in effect, becomes a complete weighing system, with electronic cash register having the capability to select a price, compute the total price based on the weight on the weighing element and deliver to the customer receipt a description of the item, the price per pound, the net weight and the total price. The capability in the electronic cash register is, also, interfaced with a computer system which stores the necessary information and activates the information when called upon through the selection of a particular code key. We have liquid measuring devices, such as metering systems on heating oil trucks, that have ticket printers which are designed to receive the information at the metering source based on the pulsing effects generated at the metering source. There is a whole array of weighing and measuring systems which are utilizing technology not even considered a short ten years ago.

Effective weights and measures administration is vital to the economic welfare of our community. It is a service of government that provides all parties involved in a commercial transaction with the confidence of measurement protection relating to the cost and accuracy of quantity determinations. In the last analysis, measurement does mean money.

Short weight or measure is a loss of money to the purchaser and over-measure or overweight is an economic loss to the seller.

When one considers that over six billion dollars per year is spent on the retail purchases of food in Massachusetts alone,





all of which is sold by weight or measure, the need for accuracy in measurement indeed becomes evident. In our weights and measures enforcement activities, not only do we test the accuracy of scales at a market which are use for the sale of meat, produce, and other commodities, but this office conducts a broad scale inspection program of the accuracy of the net weight of the contents of prepackaged meat, produce and other food products. This monitoring of the method of the use of prepackaging scales and other weighing systems keeps the merchant aware of the need to use these devices in the proper manner. Even with the inspection and testing of over 19,536 packages of food during the past year, there were a number of instances in which violations of short weight were brought to the attention of the Attorney General's Office for action under the Consumer Protection Act, Chapter 93-A, and some other cases that warranted prosecution in District Court. In each of these cases, the retail dealer paid an assessment for the cost of investigation and, in addition, agreed to provide overweight to their consumers for a limited period of time under a consent order and under court order. In this way, the consumers at that location were, at least, getting some payback for the short weight they had endured previously. This past year has seen an expansion of the Divisions' efforts to curtail the short weight and overpricing previously found in the market place. The Division has been able through continued inspection efforts to decrease the percent of short weight on packages reweighed. More importantly the Division has seen a narrowing in the difference between short weighing and overweighing while observing increases in the percent of "Correct" package weights. Several cases were referred to the Attorney Generals' office of Consumer Protection for prosecution under Chapter 93A due to the severity of our short weight findings. These results were most rewarding to all enforcement officials and are an indication that a high level of accuracy can be attained through rigid enforcement of weights and measures laws. State wide inspections will be continued on an on-going basis to insure that the high level of accuracy of package weighing demonstrated in our last survey will be maintained.

There is a heavy volume of heating oil, gasoline and other petroleum products purchased annually in Massachusetts, which make up a great bulk of our energy needs. According to the latest figures from the U.S. Department of Energy, the use of petroleum products of all grades, distillate and residual, for all uses runs at a rate of 3.4 billion gallons per year in Massachusetts. We are the largest user of No. 2 distillate heating oil in the country on a per capita basis. All of this





product is measured through approved measuring systems monitored by weights and measures officials. According to the same source, Massachusetts consumers use over 787 million gallons of No.2 heating oil with a consumer total money value of approximately one billion dollars. The Division of Standards not only has a testing capability for the testing of metering systems of fuel oil delivery trucks for towns under 5,000 population for which the Division has statutory responsibility, but, also, provides the use of our equipment and the cooperation of our personnel in the testing of vehicle-tank metering systems in quite a few of the communities in the Commonwealth that do not have their own testing equipment. The testing of these metering systems is important, but equally important are the inspections that inspectors from this office conduct in the field of the actual delivery of heating oil into consumers' homes and the random inspection of the metering systems on vehicle tank trucks during the course of deliveries. In an effort to curtail fraud in the sale of home heating oil the Division asked for and has received preliminary approval to purchase a portable 100 gallon oil prover in FY86. Such a unit mounted on a pick up truck, equipped with a power take off would give the Division of Standards the capability of testing home heating oil metering systems for accuracy at the point of delivery. Such a unit would enhance our enforcement efforts in the field and the visibility of such a unit would definitely be a deterrent to fraudulent activities in home heating oil business.

Another product which has a high money and volume value at retail, is gasoline. During the 1986 fiscal year, some 2.2 billion gallons of gasoline were sold at retail in Massachusetts, a level of consumption that was equivalent to that of the previous fiscal year period. This would figure out to close to 3 billion dollars per year for sales at retail alone. When this product is sold at wholesale, it is also sold using measuring devices that come within the jurisdiction of weights and measures officials. This office maintains close supervision over the retail sale of gasoline through the testing and sealing of the measuring devices, and also, through the enforcement of the Motor Fuel Sales Act which will be addressed later in this report.

Economic factors that have resulted in sharply increasing costs of gasoline, fuel oils and other petroleum fuels over recent years have mandated an interest in the use of more sophisticated standards and measurement tools for these fuels. The development of exploring the use of temperature compensation and automatic temperature compensators may result in the redefining of the petroleum gallon on a national basis at all levels of marketing. Although certain petroleum products have stabilized in price over the past several years, there is no





guarantee that we will not see a repeating of petroleum shortages and additional pricing increases over the long term as well as the short term based upon world production practices. This places an additional responsibility on weights and measures personnel and a further need to recognize the significance of training to meet the challenges of the future as well as those of the present.

When one considers the vast array of products that are sold at wholesale and retail other than the food and fuel designated above, all of which are sold on the basis of weight or measure, there are, likewise, billions of dollars involved in such transactions.

The basic tool that weights and measures officials and the Inspectors of Standards utilize are those field standards of mass, volume and length that enable them to make the appropriate tests in the field of the accuracy of weighing and measuring systems. This equipment must be compared against a proven standard.

The primary standards of weight, volume and length for the Commonwealth of Massachusetts are maintained by the Division of Standards in our Standards Measurement Laboratory. The original State Standards are in the custody of the Director of Standards under the provisions of Section 3 and 4 of Chapter 98. Those physical standards in our Standards Laboratory are of recent design and were given to this state by the National Bureau of Standards under a program developed in the mid-1960's. Our standards are in both the so-called customary English system and in the metric system. The Standards Measurement Laboratory is the only laboratory of its type in the Commonwealth. Metrology personnel calibrate and certify reference and field standards for Weights and Measures Officials throughout the Commonwealth, and it is a vital link in the Weights and Measures enforcement program at all levels. All of our primary standards have been certified by the National Bureau of Standards. In fact, there is an unbroken chain of certification from the International Bureau of Standards in Paris right down to the test weights that the inspector uses in checking the accuracy of a scale in a retail store.

Another equally significant area encompassed in our Standards Measurement Laboratory is the calibration of weights, thermometers, volumetric standards and other precision measuring devices submitted by industrial and research organizations of this Commonwealth. Many of these firms are engaged in contracts with military or other federal agencies and are required to furnish traceability to the National Bureau of Standards on their measuring instruments for the fulfillment of their contracts. The laboratory is able to provide this service in a minimum of time. A little over \$5,606 was collected in laboratory fees for work done for industry.



Under the Division's program for granting approval to manufacturers of clinical thermometers, these instruments are submitted to the Laboratory by manufacturers, hospitals and others for testing. Periodic testing of thermometers from stocks of distributors is made on random sample basis to insure compliance with standards.

The Standards Laboratory also performs work for other State and Federal Agencies in certifying measuring instruments that are utilized in law enforcement or laboratory analysis. This would include agencies such as the Massachusetts State Police or the U.S. Army Mechanics and Materials Research Center.

During the past year, a total of (2,771) items were subjected to examination in our Standards Laboratory covering all aspects of measurement noted in the preceeding paragraphs.

It is most appropriate at this time for this office to again make a strong recommendation for a capital outlay expenditure for the construction of a laboratory facility that would house the laboratory functions of this office. This would mean a laboratory building designed specifically for these purposes with appropriate temperature and humidity controls. It would be recommended that such a building be constructed in the Route 128 area and away from the Metropolitan Boston area. This laboratory building would provide for the following testing functions now being performed at our two laboratories, plus additional functions for a more efficient weights and measures program.

1. Our Standards Metrology Laboratory which<sup>is</sup> is presently located in the Saltonstall State Office Building. The housing of such a laboratory in the present office facility does present several drawbacks in terms of environmental controls and accessibility.
2. Our Motor Fuel Laboratory for the testing of petroleum products which is presently located in a leased facility in Arlington.
3. The Laboratory facility would have the means to test and calibrate the portable scales used by the Registry and the State Police with test loads ranging in the area of 20,000 pounds. This would indicate a need for ready access to move weights of that quantity on hoisting equipment mounted on appropriate load level I beams or similar type facility.
4. A permanently installed Vehicle Truck Master Scale that would be under cover and that would be used for both the calibration of heavy equipment of gravimetric tests involving





either metering or on-board weighing systems. Such a system would also be available to the State Police and the Registry of Motor Vehicles in connection with highway overload enforcement and for research in methodology in this area of weighing.

5. A garaging area for the storage and maintenance requirements for the heavy capacity scale testing unit. This unit cost approximately \$100,000.00 and should receive the utmost care in times of non-use.
6. A facility to calibrate vehicle tanks and also to test vehicle tank metering systems that utilize both gravity or pump feeds.
7. Facilities to conduct training programs for all weights and measures officials with a potential of having hands-on experience as well as classroom instruction.

The time to invest in such a facility for future needs has arrived. The economics of accuracy in measurement in all areas of trade, commerce and law enforcement has mandated such a need.

All of the work of the Division of Standards is authorized by statute, and much of the remainder of this report will cite the various sections and chapters of the General Laws under which the Division of Standards functions.

Section 5 of Chapter 98 provides that cities and towns shall keep standard weights and balances which were provided by the Commonwealth. These standards are periodically tested by the Division of Standards. The maintenance of required accuracy on reference and field standard provides the basic tool of weights and measures enforcement -- the knowledge and confidence that testing equipment is accurate within required levels.

Section 29 of Chapter 98 provides for the adoption by the Director of rules and regulations and specifications and tolerances relative to the design and use of weighing and measuring devices. This covers a wide range of measuring devices including scales all types ranging from jewelers' and pharmaceutical balances to large capacity vehicle scales, weights, liquid measuring devices, liquid measures, vehicle tanks used as measures, farm milk tanks, measure containers, milk bottles, lubricating oil bottles, graduates, linear measures, fabric measuring devices, cordage measuring devices, taximeters, odometers, dry measures and berry baskets and boxes). The Division has the authority to make examination and test of prototype weighing and measuring devices. This examination is for the purpose of determining whether the design of the device is such to assure reasonable permanent accuracy and whether it





may be used to facilitate the perpetration of fraud. After devices are approved, all inspectors and municipal weights and measures officials are notified of the results of such tests so that they may proceed accordingly when encountering a device of this type in the field.

It has been apparent that recent trends in measurement are directed to the broad use of electronic elements for load sensing, quantity sensing, memory and computational capability and with a variety of indicating systems that can be adapted to the needs of a particular industry or method of sale. There is no doubt that the application of measurement systems of more sophisticated design will continually develop and require weights and measures enforcement officials to continually update their knowledge and background in these systems. The sophistication of design and present day marketing practices require the need for career oriented personnel who can be trained effectively. Further, there should be the establishment of a title for a full time training officer within the Division of Standards to coordinate the activities of the training efforts of the National Bureau of Standards, community colleges and other resources both public and private that will enable weights and measures officials to build up an effective cadre of knowledgeable enforcement employees. This training should also be extended to private sector areas such as installers and servicemen of weighing and measuring devices and users of weighing and measuring devices. During the past year two training seminars were held. These week long training seminars were offered to municipal and state weights and measures inspectors. The Division presented the Institute for Weights and Measures 100 Course in "Basic Weights and Measures." The course includes thirty hours of classroom instruction as well as actual field testing. Each participant who successfully completes the IWM 100 Course receives a diploma and 3 continuing education units. The Division plans on offering this course on an on going basis to all Massachusetts Weights and Measures Officials. The Division has committed the resources of the Department to the training of all Weights and Measures officials.

The Division of Standards has been given the responsibility of testing metering systems involving the delivery of Liquefied Petroleum Gas (LPG) under the provisions of Section 28-A of Chapter 98. This Division maintains a 100 gallon LPG prover which is the only one of its type in the Commonwealth. During the period covered by this report, 245 Liquefied Petroleum Gas metering systems were tested by this office and 129 of these devices were adjusted in the field by our field inspector in charge of this program. Adjustment rates of this type of equipment are very high due to the fact that this product has no lubricity when passing through a metering system and results in excessive wear.

The Division also plays a significant role in the dairy industry as a result of Section 46-A of Chapter 98 which requires that each bulk milk tank shall be calibrated by this Division and conversion charts based on this calibration be proved for use with tank. Since the time that the program was initiated, we have calibrated over 4,800 bulk tanks and performed many retests on these installations.



During 1986, 600,000,000 pounds of milk were produced on Massachusetts dairy farms with a farm value of \$14.25 per hundred weight. All of this milk is measured for sale through the calibrations performed by this Division on bulk milk tanks at farm locations.

Our measurement of milk does not stop at this point. Frequent inspections are made at dairy plants to insure proper measurement in the packaging of milk for retail sale. Milk packages are also monitored at the retail level to insure accuracy in the distribution of this product.

Section 33 of Chapter 98 requires that this Division annually inspect and test all weighing and measuring devices, including scales and metering systems used in State Institutions for the receipt and disbursement of supplies. During the past year 660 such devices were tested and 84 of these devices were adjusted by inspectors. These adjustments eliminated state expenditures in hiring professional service agencies to make such repairs.

Section 33-A, Chapter 98, provides for the enforcement of weights and measures administration by the Division of Standards on all towns under 5,000 population. At the present time there are 142 towns in this category. During the past calendar year 2889 weighing and measuring devices were tested by inspectors in these localities together with necessary inspections relating to the sale of food, fuel and other commodities. The following is a statistical analysis for weighing and measuring devices tested by this Division in towns under 5,000 population for the 1983 calendar year:

Towns under 5000 - Calendar Year FY 1986

Devices Inspected and Tested

<u>Article</u>	<u>Sealed</u>	<u>Unsealed</u>	<u>Condemned</u>	<u>Adj</u>
Scales	1288	7	108	388
Heavy Capacity Scales	8	0	1	0
Drug Balances	18	0	1	12
Weights	0	0	0	0
Gas, Oil, Grease Meters	660	1	24	43
Vehicle Tank Meters	115	4	2	18
LPG Meters	13	0	1	7
Clinical Thermometers	5	0	0	0
Liquid Measures	557	2	15	81
Bulk Storage Meter	1	0	0	0
Linear Measures	52	0	1	6
Taximeters	5	0	0	0
Totals	2722	14	153	557





Under the provisions of Section 32 of Chapter 98, aside from the testing and inspection of city and town standards, the Inspectors of this Division are also empowered to make inspections and tests of any weighing and measuring devices located in any city or town in the Commonwealth. During the past year, 16,560 weighing and measuring devices were inspected and tested by Inspectors of this Division throughout the Commonwealth. In those instances, where the devices were found to be inaccurate or not sealed as required by law, appropriate steps were taken by this office to insure conformance with the statutes. It will also be noted that Inspectors adjusted the measuring elements on 1,107 of these devices to effect more accurate measurement in the buying and selling of commodities. Assistance and instruction are also given to local weights and measures officials by Inspectors of this office in advising them in methods of testing various types of weighing and measuring devices and other practical information relative to the administration of their office.

The following is a summary by classes of weighing and measuring devices of inspections and tests made by this office in this area.

WEIGHING AND MEASURING DEVICES TESTED AND INSPECTED FY 1986

<u>Article</u>	<u>Sealed</u>	<u>Unsealed</u>	<u>Condemned</u>	<u>Adj.</u>
Scales, General	938	4	126	261
Scales, Heavy Capacity	200	0	133	49
Drug Balances	0	0	0	0
Weights, Avdp., Apoth., Metric	356	0	0	0
Gas, Oil, Grease Meters	660	0	8	37
Vehicle Tank Meters	165	9	5	45
LPG Meter Systems	181	0	5	45
Clinical Thermometer	0	0	0	0
Liquid Measures	888	1	7	50
Linear Measures	31	0	0	0

Totals	3419	14	284	487
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This Division maintains a heavy capacity vehicle scale testing unit recently purchased and delivered to the Division in June 1983. This unit carries 21,000 pounds of test weights in the form of twenty one (21) 1000 lb. cast iron block test weights. This unit is the only one of its type in the Commonwealth and all scales of this category are subject to examination with this test unit. Typical of the type of scale tested in this class are those used in sand and gravel operations, crushed stone, scrap and waste, paving materials and hosts of other endeavors in which truck weighing is required. Heavy capacity scales used for the sale of road building





material to the Commonwealth are tested in cooperation with requests made by the Department of Public Works. This new unit is the most modern available and will provide for greater productivity in heavy capacity scale testing.

Other recent responsibilities placed on this Division are:

1) An amendement to Section 87-A of the General Laws which provides for appointment of persons appointed to the Division of State Police as Weighers and Measures of motor vehicles and trailers and the loads of such vehicles and trailers. The appointment is to be made by the Director of Standards.

2) An amendment to Section 19-A, Chapter 30, of the General Laws, which provides that "in weighing of any motor vehicle or trailer or semi-trailer unit under this Chapter, portable scales may be used; provided, that such scales have been approved by the Director of Standards under Section 29 of Chapter 98; and provided further, that such scales shall be inspected at least once in each year by the Director of Standards or his Inspector". During the past year, 118 wheel load weighers were subjected to extensive tests. This included testing each individual weigher up to 20,000 lbs. capacity. The Registry of Motor Vehicles and the Division of State Police have been enforcing the laws relative to vehicle overloading and have been collecting fines imposed by the courts based on determinations made with portable scales. The use of these portable scales would have no validity if they were not certified by the Division of Standards, and would for all practical purposes bring to a halt the enforcement of vehicle overloading through the use of portable scales and also a reduction or elimination of federal highway funds. A lack of such a program would also result in the withholding of significant amount of monies from the Federal government with regard to disbursement of highway funds. Those states which do not have an effective highway overload program are penalized by the withholding of these funds.

#### OTHER INSPECTIONS FY 1985

Hawker and Pedler Inspections	198
Fuel Oil Delivery Inspections	723
Unit Pricing Inspections	48
Motor Fuel Outlet Inspections	2214
Complaint Inspections	332
Prosecutions	19
Motor Fuel Samples (Gasoline)	4838
Motor Oil Samples	165
Diesel Fuel	415
Heating Oil Samples	248
Coin-Operated Devices Tested for Approval	24
Prototype Examinations	
Weighing and Measuring Devices	26



Under Section 37 of Chapter 98, each Municipal Weights and Measures Official is required to file an annual report with the Director of Standards citing certain required information relative to work performance.

Section 44 of Chapter 98 provides that the Director shall issue rules and regulations governing the used of leather measuring devices. Inspectors of this Division make tests of these devices and also conduct examination of employees in leather plants desiring to be certified as leather measurers. Section 1, Chapter 95, indicates the requirement of certification by this office prior to such appointment.

Section 46, Chapter 98, gives to the Director of Standards certain responsibility with relation to examination of weighing and measuring devices used in industry for non-commercial purposes. Such examination and analysis in our Standards Laboratory. Both smaller and larger employers in this Commonwealth have availed themselves of our services. This includes companies such as the General Electric Company, Raytheon Manufacturing Company, Radio Corporation of America, Sylvania, and many other manufacturing and research and development organizations. Many of our Inspectors, during the course of their examination of measuring devices, used in manufacturing plants, are able to make concrete suggestions relative to their required legal obligations not only in this State but other states in which they do business. This is a valuable service in that they will not be cited for violations in other jurisdictions that may be costly from the point of view of fines or having their goods removed from the marketplace.

Section 9 through 14, Chapter 98, deal with the provisions relating to the manufacture and sale of clinical thermometers. This has been a most effective program to insure that all medical facilities and other users of mercury-in-glass clinical thermometers will receive accurate instruments used for diagnosis. There are upwards of a million instruments of this class sold annually. Prior to being able to sell a clinical thermometer in this State, a manufacturer must receive the approval of this office based upon submission of a substantial sample of his product. Random samples are also picked up at various outlets for testing in our Standards Laboratory.

Section 14-A, 15, 16, 18, 19, 20 and 22 of chapter 98 deal with particular designs of volumetric containers such as oil bottles, milk bottles, etc., that give to the Director the authority to grant to a manufacturer of such a device permission to affix the manufacturer's seal or mark to this class product.

Section 1 through 5 of Chapter 99 deals with the use of the





metric system and provides that the Director may test and seal metric weights brought to him for that purpose.

### Current Metric Conversion Activities

At the national level, the U.S. Metric Board which was established under the provisions of the Metric Conversion Act of 1975 to coordinate the voluntary change to the metric system was not funded beyond September 30, 1982. The functions of the U.S. Metric Board were transferred by Executive Order to the U.S. Department of Commerce, Office of Productivity, Technology and Innovation.

One of the prime private sector organizations that is involved in metric transition is the American National Metric Council, an organization that was started through the efforts of the American National Standards Institute. This organization which is comprised of many sectors of the American economy has taken a pragmatic approach to voluntary conversion and the utilization of a "rule of reason", that is, convert when it is beneficial to do so.

In any event, the use of the metric system is part of our economy, science, technology, production and utilization in consumer and non-consumer measurement functions. It is a subject that will be with us and will most likely continue to evolve as a more significant part of our measurement system in the future.

Under Section 3 of Chapter 97, calibration of measuring tapes has been made for land surveyors, engineering groups, public works officials and law enforcement agencies utilizing a 50-foot bench standard which has traceability to a National Bureau of Standards reference calibration.

Under the provisions of Section 87-A and 87-B of Chapter 41, the Director appoints certain persons employed by the Registry of Motor Vehicles and the Division of State Police as weighers and measurers of commercial motor vehicles and trailers and the loads of such trailers. Appropriate records must be kept of such appointments in the event they must be attested to in Court.

Under Sections 7 through 10 of Chapter 94, the Director establishes rules and regulations relative to the manufacture and sale of bread. He also establishes tolerance levels relative to quantity determinations of such loaves. Prior to any court complaint being issued for violation of these sections, a hearing must be held before the Director.

This office enters into the enforcement of Section 92-B of Chapter 94 relative to sales of meat, poultry, fish, fruits and vegetables. Section 98 and 99-A relative to sizes of containers for sale of fruit and vegetables sold at wholesale and retail.



The Division enforces the provisions of Section 181 of Chapter 94 relating to the marking and labeling of quantity of contents of prepackaged commodities. Section 182 provides for the adoption of rules and regulations relating to such marking. This office has recently adopted regulations that are in conformance with the requirements of the Fair Labeling and Packaging Act.

Under Sections 238 through 249-F of Chapter 98, the Division has certain duties and functions relative to the sale and measurement of wood and coal. Based upon complaints received at this office, a number of inspections and investigations were conducted relative to short measure in the sale of firewood. These cases were referred to the Attorney General's Office or the District Court which in all cases provided for restitution to the purchaser and fines for cost of investigation levied on the seller. Restitution to consumers in Fiscal Year 1986 amounted to over 11,500 dollars.

Sections 283 and 284 provide for inspection and approval or disapproval of certain categories of coin-operated devices. Devices are inspected to determine whether there are facilities for returning the coin in the event the device does not perform the service. With relation to amusement devices, local city and town officials check for such approval prior to the issuance of local licenses as required by Section 177-A of Chapter 140.

Sections 285 through 287 of Chapter 94 deal with the manufacture and sale of thread and yarns providing for requirements of net quantity statements, tolerance levels on measurement and filing of brand names and trade marks with the Division of Standards.

Another significant area of the efforts of this Division is directed towards the enforcement of Sections 295-A through 295-O of Chapter 94 which are known and cited as the Motor Fuel Sales Act. It provides for the annual licensing of all retail dealers engaged in selling motor fuel or automotive lubricating oil at retail. This office issues regulations under authority of this statute governing the advertising and sale of motor fuel and motor oil. It provides for mandatory display of price signs on motor fuel dispensing devices, requires that devices be turned back to zero prior to each delivery and that the computing price be the same as the posted price. It provides for labeling of viscosity classifications of motor oils and standard methods of test to determine conformance to such markings. It provides for basic quality reference standards for motor fuels, particularly gasoline. During the past year, 2,214 motor fuel outlets were inspected in connection with the enforcement of this Act and 10,417 gasoline measuring devices were subjected to inspections.





Inspectors also picked up a substantial number of samples for quality testing in our Motor Fuel Laboratory. The Division maintains a Motor Fuel Laboratory in Arlington. This Motor Fuel Laboratory is the only State Laboratory in the Commonwealth involved in the testing of gasoline, motor oil, antifreeze and heating oils. The chief functions of this laboratory are:

(a) Conducting tests analysis of gasoline and lubricating oil for the protection of the buyer from adulteration, substitution and mislabeling in the sale of these products. During the past year 4,838 samples of gasoline were subjected to analysis; 165 samples of motor oil were tested and 240 octane numbers were determined.

(b) To conduct tests and chemical analysis of antifreeze necessary in the enforcement of Chapter 94, Sections 303-G through 303-M, which establish authority for promulgation of minimum standards of quality for antifreeze in order to assure the buyer of adequate and noncorrosive cooling system protection. During the past year, the manufacturers submitted 52 samples of various brands of antifreeze for examination prior to issuance of permits to sell this commodity.

(c) Recent legislation provides for the testing and chemical analysis of various grades of fuel oil to determine compliance with minimum standards established by the Director of Standards. This assures the buyer of getting fuel oil of the proper grade and quality. During the past year, 248 samples of heating oils of various grades and viscosities were tested in our Laboratory.

Our Motor Fuel Laboratory is equipped with an ASTM approved combination research and motor method octane rating engine. This is the only instrument of its type in the New England area. Our Laboratory holds membership in the American Society for Testing and Materials (ASTM) and the Society of Automotive Engineers (SAE).

During this past year our Motor Fuel Laboratory found samples of gasoline that contained Alcohol. After extensive testing it was determined that the Alcohol blend fuels were from one distributor. Some consumer complaints were traced to the use of Alcohol blend fuels. Most automobile manufacturers restrict the percent of alcohol recommended for use with their vehicles, while some do not recommend a alcohol blend fuel use at all.

Therefore, based on these facts the Division under its regulatory authority passed regulations which took effect February 1, 1986. These regulations require the posting of alcohol blend information on each dispenser from which motor fuel is sold if the content exceeds one percent.



Section 303-F of Chapter 94 provides for certain information relative to sale and delivery of fuel oils used for heating and cooking purposes. During the course of inspections of delivery of fuel oils, surveillance is made of the method of delivery, examination of the device and the inspection of appropriate certificates with the quantity and price marking notes on the certificate. During the past year 723 inspections were made by Inspectors of this Division relating to the delivery of 189,392 gallons of home heating fuels.

The Division is the central licensing agency and is charged with the enforcement of General Laws, Chapter 101, relating to sales by transient vendors and hawkers and pedlers. With relation to transient vendors, aside from the license fee, the applicant must submit either a special deposit in the sum of \$500.00 or file a bond in that amount payable to the Director.

With regard to hawkers and pedlers, the Division issues town, city and state licenses and also special state licenses for disabled veterans and the blind. During the past year, 2,038 hawker and pedler licenses and 224 transient vendor licenses were issued by this Division .

Chapter 618 Acts of 1985 under the provisions of Chapter 100 requires the Division to issue licenses to auctioneers as of March 21, 1986. The Division expects to license 500 to 600 Auctioneers annually. Each auctioneer is required to post a ten thousand dollar surety bond in addition to a license fee of \$100.. The Division is anticipating revenues in excess of \$50,000 dollars annually from this licensing function. In addition the Division is required to hold hearings in regards to violations of Chapter 100. The Division has the power to revoke or suspend any license issued under Chapter 100.

Chapter 6 of the General Laws, which was amended by Chapter 885 of the Acts of 1970, commonly referred to as the Unit Pricing Law, provides that the Director of Standards shall enforce regulations adopted by the Consumers Council is no longer in existence.

Therefore, the Division is hard pressed to enforce regulations in view of the fact that there is no regulatory authority at the present time. The Executive Office has filed Legislation the past two legislative sessions that would have placed the regulatory authority with the Director of Standards. Unfortunately the legislation was not passed. The Division does not anticipate much enforcement activity until such time as a regulatory authority is established.





Chapter 880 of the Acts of 1975 provides for the addition of Section 56-D to Chapter 98 of the General Laws which gives authority to this Division to make examinations and tests of automated electronic retail checkout systems to determine whether the price at which a commodity is offered for sale conforms to the price for which the purchaser is charged by such automated retail checkout system.

The Division of Standards investigates numerous complaints lodged either directly with the Division or referred to this office from other agencies, such as the Consumer Protection Division of the Attorney Generals' Office. During the past year 224 such complaints ~~were~~ investigated. In addition, there are hundreds of telephone and letter inquiries seeking information on certain aspects of the laws, regulations or other functions of the Division of Standards.



## EXECUTIVE OFFICE OF CONSUMER AFFAIRS

## DIVISION OF STANDARDS

## FINANCIAL STATEMENT

7-1-85 to 6-30-86

RECEIPTS1615

40-03-40	Laboratory Fees	\$ 5,606.00
61-01-40	State License Fees (1,166)	116,600.00
	City License Fees (575)	1,150.00
	Town License Fees (131)	262.00
61-02-40	Transient Vendor License Fees	\$ 11,200.00
61-03-40	Motor Fuel and/or Lubricating Motor Oil License Fees	272,265.00
61-05-40	Auctioneers (412)	41,200.00
61-04-40	Antifreeze Permits (59)	1,180.00
64-01-40	License Displays	1,966.00
69-01-40	Miscellaneous	7.00
		<hr/> \$451,436.00

PAYMENTS

Personal Services - 01 Account	\$512,224.45
02 Account	67,641.75
	<hr/> \$579,866.20
General Expenses	96,914.70
	<hr/> \$676,780.90









